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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,916	11/02/2001	Hiroyuki Ito	3019.002USU	7771

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EXAMINER	
VIJAYAKUMAR, KALLAMBELLA M	
ART UNIT	**PAPER NUMBER**
1751	

DATE MAILED: 02/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/003,916	Applicant(s) ITO ET AL.	
	Examiner Kallambella Vijayakumar	Art Unit 1751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Application filed 11/02/01*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4* is/are pending in the application.

4a) Of the above claim(s) *3 and 4* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 2* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Detailed Action

- Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file. Claims 1-4 are currently pending with the application.

- The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892 and/or the applicant has provided them on PTO-1449, they have not been considered.

  The information disclosure statement (IDS) submitted on 11/02/2001 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

- The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-2, drawn to high-density hydroxides, classified in class 252, subclass 518.1.

II. Claims 3-4, drawn to process for the production of high-density hydroxides, classified in class 423, subclass 49.

Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the process could be used to make a supported catalysts.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.

During a telephone conversation with Paul Greeley on 01/14/2004 a provisional election was made without traverse to prosecute the invention of I, claims 1-2. Affirmation of this election must be made by applicant in replying to this Office action. Claims 3-4 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the

currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).3

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-2 are rejected under 35 U.S.C. 102(b) as anticipated by either Ikoma et al (US Patent No. 5,700,596) or Matsubara et al (JP 10-316431).

- Ikoma et al teach the composition and making of *nickel hydroxides* with improved tap densities containing 1-7 wt% of at least one of Cd, Ca, Zn, Mg, Fe, *Co, and Mn* (Col-3, Lines: 1-10). The hydroxides of the metals were co-precipitated by the addition of sodium hydroxide to an aqueous solution of metal salts in a continuous process. The tap density of a typical example of the mixed hydroxide composition by Ikoma et al was *2.01 g/cc* (Col-5, Lines: 1-10, Table-1) that would meet the limitations in instant claim-1. 1-7 wt% of these elements in the composition of the mixed hydroxides would translate to 0.02-0.12 Moles of Co and 0.02-0.13 Moles of Mn, when Co and Mn are the elements of choice in the

composition with Ni and would meet the elemental ratio limitations in instant claim-2. All the limitations of the instant claims are met.

The reference is anticipatory.

- Matsubara et al teach making of a high bulk density mixed hydroxide with the formula $Ni^{2}_{1-x}Co^{2+}_{x1}M^{3+}_{x2}(OH)_2$-nz(An-z) wherein M is Al, Fe, *Mn* or B; $0.01 \leq x \leq 0.5$; x=x1+x2; $0.01 \leq x1 \leq 0.5$; $0 \leq x2 \leq 0.3$; $0.03 < z < 0.3$, by the addition of sodium hydroxide to an aqueous solution containing a mixture of desired metal ions (Abstract, Sections: 0007, 0013-0016, 0022). The tap density limitation in claim-1 would be inherent for these high bulk density materials as shown by Ikoma et al in the preceding rejection. The range of values for x1 and x2 corresponding respectively to Co and Mn in the Ni-mixed hydroxide would meet the limitation of composition in claim 2. All the limitations of the instant claims are met.

The reference is anticipatory.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

2. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikoma et al (US Patent No. 5,700,596) in view of Kimura et al (JP 10-081521).

The disclosure on the composition of the co-precipitated mixed hydroxides of Ni by Ikoma et al is set forth per the Rejection-1 under 35 USC § 102.

Ikoma et al differ from the applicants in that an exclusive composition of Ni-Co-Mn-hydroxides was not disclosed.

Kimura et al teach the Mn-Co based double hydroxides of Ni as Li-secondary cell anode material, and its preparation by the alkaline hydrolysis of metal salts in aqueous solution (Abstract).

It would have been obvious for one of ordinary skill in the art to modify the composition of Ikoma et al by selecting Co and Mn with Ni as preferred elements in the composition per the teachings of Kimura et al by choice of design to benefit from high density and high capacity electrode materials, because both the teachings by Ikoma and Kimura are in the analogous art of electrode materials wherein Kimura teaches the benefits of the Ni-Co-Mn-hydroxide composite, and with the expectation of reasonable success in obviously arriving at the limitations of the instant claims by the applicants.

3. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsubara et al (JP 10-316431) in view of Kimura et al (JP 10-081521) or Ikoma et al (US Patent No. 5,700,596).

The disclosures by Matsubara et al on the compositions of the co-precipitated mixed hydroxides containing Ni-Co-Mn are set forth per the Rejection-1 under 35 USC § 102.

Matsubara et al differ from the applicants in that the exclusive composition of Ni-Co-Mn-hydroxides or the tap densities of the mixed hydroxides were disclosed. However, Matsubara claims these mixed hydroxides to be high bulk/tap density materials.

Kimura et al teach the Mn-Co based double hydroxides of Ni as Li-secondary cell anode material, and its preparation of fine particles of the mixed hydroxides by the alkaline hydrolysis of metal salts in aqueous solution (Abstract).

The disclosure by Ikoma et al on the mixed hydroxide composites is set forth as above per the Rejection-1 under 35 USC § 102. Ikoma et al specifically teaches the increasing the tap density of the mixed-composite hydroxides and its benefits as electrode materials.

It would have been obvious for one of ordinary skill in the art to modify the composition of Matsubara et al with the teachings of Kimura et al by selecting Mn as preferred dopant element by choice of design to benefit from high density and high capacity electrode materials, because both the teachings by Kimura and Matsubara are in the analogous art of electrode materials, wherein Kimura teaches the benefits of incorporating Mn into Ni-Co-hydroxide forming Ni-Co-Mn-hydroxide composite, and/or vary the tap density of the resultant Ni-Co-Mn-Hydroxide composite per the teachings of Ikoma et al to

benefit from high discharge capacities of the electrode material due to increased loading and stability of the Ni-Co-Mn-hydroxides, because all the teachings are in the analogous art of electrode materials and with the expectation of reasonable success in obviously arriving at the limitations of the instant claims by the applicants.

Conclusion

- Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kallambella Vijayakumar whose telephone number is 571-272-1324. The examiner can normally be reached on M-Th, 07.00 - 16.30 hrs, Alt. Fri: 07.00-15.30 hrs.
- If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

- Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

02/02/2004

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